IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

VEHICLE INTERFACE TECHNOLOGIES, LLC, Plaintiff, v. FERRARI NORTH AMERICA, INC., Defendant.	C.A. No. 12-1283-RGA REDACTED: PUBLIC VERSION
VEHICLE INTERFACE TECHNOLOGIES, LLC, Plaintiff, v. FORD MOTOR COMPANY, Defendant.	C.A. No. 12-1284-RGA
VEHICLE INTERFACE TECHNOLOGIES, LLC, Plaintiff, v. JAGUAR LAND ROVER NORTH AMERICA, LLC, Defendant.	C.A. No. 12-1285-RGA
VEHICLE INTERFACE TECHNOLOGIES, LLC, Plaintiff, v. PORSCHE CARS NORTH AMERICA, INC., Defendant.	C.A. No. 12-1286-RGA

AMENDED JOINT CLAIM CONSTRUCTION CHART

Brian E. Farnan (No. 4089)
Rosemary J. Piergiovanni (No. 3655)
FARNAN LLP
919 N. Market Street, 12th Floor
ilmington, DE 19801
(302) 777-0300
bfarnan@farnanlaw.com
rpiergiovanni@farnanlaw.com
Attorneys for Plaintiff Vehicle Interface Technologies, LLC

John W. Shaw (No. 3362)
Stephanie E. O'Byrne (No. 4446)
David M. Fry (No. 5486)
SHAW KELLER LLP
300 Delaware Avenue, Suite 1120
Wilmington, DE 19801
(302) 298-0700
jshaw@shawkeller.com
sobyrne@shawkeller.com
dfry@shawkeller.com
Attorneys for Defendant Jaguar Land Rover North America, LLC

Frederick L. Cottrell, III (No. 2555)
Jason James Rawnsley (No. 5379)
RICHARDS, LAYTON & FINGER, PA
One Rodney Square
920 N. King Street
Wilmington, DE 19801
(302) 658-6541
cottrell@rlf.com
rawnsley@rlf.com
Attorneys for Defendants Ferrari North America, Inc. and Porsche Cars North America, Inc

Richard K. Herrmann (No. 405)
Mary Matterer (No. 2696)
MORRIS JAMES LLP
500 Delaware Avenue, Suite 1500
P.O. Box 2306
Wilmington, DE 19899-2306
(302) 888-6800
rherrmann@morrisjames.com
mmatterer@morrisjames.com
Attorneys for Defendant Ford Motor Company

Dated: December 20, 2013

Amended[2] Proposed Claim Constructions

VIT v. PCNA (12-cv-1286), *VIT v. FNA* (12-cv-1283), *VIT v. Ford* (12-cv-1284), *VIT v. Jaguar Land Rover* (12-cv-1285)

	Term	Agreed Constructions
1	parameter(s) (claims 1, 3, 6-7, 9, 16, 18)	adjustable setting(s)
2	optional subsystem(s); optional subsystem(s) for the vehicle (claims 1, 7, 10, 13-14, 16)	subsystems that are optionally included with a vehicle or are optionally configured and operated using a computer system installed in the vehicle

	Term	Proposed Constructions[1]				
		PCNA	FNA	Ford	Jaguar	VIT
1	steering device (claims 1, 2, 4, 7, 12, 16)	"device used to steer the vehicle (e.g., steering wheel)" **'677 Patent at** 1:63-65; 3:14-16; 5:58-60; Figs. 1, 3 and accompanying text	"device used to steer the vehicle (e.g., steering wheel)" **'677 Patent at** 1:63-65; 3:14-16; 5:58-60; Figs. 1, 3 and accompanying text	"device used to steer the vehicle (e.g., steering wheel)" **'677 Patent at** 1:63-65; 3:14-16; 5:58-60; Figs. 1, 3 and accompanying text	"device used to steer the vehicle (e.g., steering wheel)" **'677 Patent at** 1:63-65; 3:14-16; 5:58-60; Figs. 1, 3 and accompanying text	"steering wheel" **'677 Patent at** 1 :37-45, 1:64-65, 3:14-16, FIGS 1 & 3 and associated text.
2	wherein the fixed area and the selectable area each comprise a unique and static portion of the display (claims 1, 7, 16)	"wherein the fixed area and the selectable area have non-overlapping boundaries and the fixed area does not display any of the plurality of pages	"wherein the fixed area and the selectable area have non-overlapping boundaries and the fixed area does not display any of the plurality of pages	"wherein the fixed area and the selectable area have non-overlapping boundaries and the fixed area does not display any of the plurality of pages	"wherein the fixed area and the selectable area have non-overlapping boundaries and the fixed area does not display any of the plurality of pages	"the display includes separate fixed and selectable areas, neither of which is relocated or resized to different portions on the display"

[1] The defendants reserve their right to argue invalidity of the '677 patent as described in their respective invalidity contentions, including invalidity related to enablement, indefiniteness, and written description.

[2] The defendants have amended this chart to include excerpts of inventor testimony obtained after the original chart was filed.

Summary of Parties Initial Proposed Claim Constructions

VIT v. PCNA (12-cv-1286), *VIT v. FNA* (12-cv-1283), *VIT v. Ford* (12-cv-1284), *VIT v. Jaguar Land Rover* (12-cv-1285)

Term	Proposed Constructions[1]				
	PCNA	FNA	Ford	Jaguar	VIT
	and the selectable area does not display vehicle information" **'677 Patent at** Abstract; 1:7-13;1:32-35; 1:58-62; 2:5-13; 2:18-24; 2:32-41; 2:50-54; 3:4-14; 3:27-33; 3:48-65; 3:66-4:12; 4:13-22; 4:40-60; 4:61-5:8; 5:8-5:17; 5:41-47; 6:8-10; 8:16-25; Figs. 1, 2 and accompanying text; Claims 1, 7, 16 **Prosecution History** 7/19/04 Amendment in Response to Office Action; 7/13/04 Examiner Interview Summary **U.S. Patent No. 5,847,704 at** 3:25-4:7; 10:16-23; Figs. 2, 3 and	and the selectable area does not display vehicle information" **'677 Patent at** Abstract; 1:7-13;1:32-35; 1:58-62; 2:5-13; 2:18-24; 2:32-41; 2:50-54; 3:4-14; 3:27-33; 3:48-65; 3:66-4:12; 4:13-22; 4:40-60; 4:61-5:8; 5:8-5:17; 5:41-47; 6:8-10; 8:16-25; Figs. 1, 2 and accompanying text; Claims 1, 7, 16 **Prosecution History** 7/19/04 Amendment in Response to Office Action; 7/13/04 Examiner Interview Summary **U.S. Patent No. 5,847,704 at** 3:25-4:7; 10:16-23; Figs. 2, 3 and	and the selectable area does not display vehicle information" **'677 Patent at** Abstract; 1:7-13;1:32-35; 1:58-62; 2:5-13; 2:18-24; 2:32-41; 2:50-54; 3:4-14; 3:27-33; 3:48-65; 3:66-4:12; 4:13-22; 4:40-60; 4:61-5:8; 5:8-5:17; 5:41-47; 6:8-10; 8:16-25; Figs. 1, 2 and accompanying text; Claims 1, 7, 16 **Prosecution History** 7/19/04 Amendment in Response to Office Action; 7/13/04 Examiner Interview Summary **U.S. Patent No. 5,847,704 at** 3:25-4:7; 10:16-23; Figs. 2, 3 and	and the selectable area does not display vehicle information" **'677 Patent at** Abstract; 1:7-13;1:32-35; 1:58-62; 2:5-13; 2:18-24; 2:32-41; 2:50-54; 3:4-14; 3:27-33; 3:48-65; 3:66-4:12; 4:13-22; 4:40-60; 4:61-5:8; 5:8-5:17; 5:41-47; 6:8-10; 8:16-25; Figs. 1, 2 and accompanying text; Claims 1, 7, 16 **Prosecution History** 7/19/04 Amendment in Response to Office Action; 7/13/04 Examiner Interview Summary **U.S. Patent No. 5,847,704 at** 3:25-4:7; 10:16-23; Figs. 2, 3 and	**'677 Patent at** 1:32-35, FIGS 1 & 2 and associated text **Prosecution History** Jul. 19, 2004 Amendment / Request for Reconsideration After Non-Final Rejection, at 9.

Summary of Parties Initial Proposed Claim Constructions

VIT v. PCNA (12-cv-1286), *VIT v. FNA* (12-cv-1283), *VIT v. Ford* (12-cv-1284), *VIT v. Jaguar Land Rover* (12-cv-1285)

Term	**Proposed Constructions**[1]				
	PCNA	**FNA**	**Ford**	**Jaguar**	**VIT**
	accompanying text. **U.S. Patent No. 5,121,099 at** 1:6-11; 1:31-39; Figs. 1, 2, 3, 4, 5 and accompanying text **U.S. Patent No. 5,757,268 at** 1:26-36; 4:33-40; 5:26-65; 7:59-9:41; Figs. 1b, 2A, 2B, 5, 6, 7A, 7B, 8A, 8B and accompanying text **U.S. Patent No. 5,821,935 at** 3:50-5:64; Figs. 2-4 and accompanying text; Claim 2 **Deposition of Prakash S. Pathare**, December 17, 2013 110:16-111:2	accompanying text. **U.S. Patent No. 5,121,099 at** 1:6-11; 1:31-39; Figs. 1, 2, 3, 4, 5 and accompanying text **U.S. Patent No. 5,757,268 at** 1:26-36; 4:33-40; 5:26-65; 7:59-9:41; Figs. 1b, 2A, 2B, 5, 6, 7A, 7B, 8A, 8B and accompanying text **U.S. Patent No. 5,821,935 at** 3:50-5:64; Figs. 2-4 and accompanying text; Claim 2 **Deposition of Prakash S. Pathare**, December 17, 2013 110:16-111:2	accompanying text. **U.S. Patent No. 5,121,099 at** 1:6-11; 1:31-39; Figs. 1, 2, 3, 4, 5 and accompanying text **U.S. Patent No. 5,757,268 at** 1:26-36; 4:33-40; 5:26-65; 7:59-9:41; Figs. 1b, 2A, 2B, 5, 6, 7A, 7B, 8A, 8B and accompanying text **U.S. Patent No. 5,821,935 at** 3:50-5:64; Figs. 2-4 and accompanying text; Claim 2 **Deposition of Prakash S. Pathare**, December 17, 2013 110:16-111:2	accompanying text. **U.S. Patent No. 5,121,099 at** 1:6-11; 1:31-39; Figs. 1, 2, 3, 4, 5 and accompanying text **U.S. Patent No. 5,757,268 at** 1:26-36; 4:33-40; 5:26-65; 7:59-9:41; Figs. 1b, 2A, 2B, 5, 6, 7A, 7B, 8A, 8B and accompanying text **U.S. Patent No. 5,821,935 at** 3:50-5:64; Figs. 2-4 and accompanying text; Claim 2 **Deposition of Prakash S. Pathare**, December 17, 2013 110:16-111:2	

Summary of Parties Initial Proposed Claim Constructions

VIT v. PCNA (12-cv-1286), *VIT v. FNA* (12-cv-1283), *VIT v. Ford* (12-cv-1284), *VIT v. Jaguar Land Rover* (12-cv-1285)

	Term	Proposed Constructions[1]				
		PCNA	**FNA**	**Ford**	**Jaguar**	**VIT**
3	set of input devices (claims 2-4, 6-11, 16, 18)	"two or more related input devices" **'677 Patent at** Abstract; 1:63-2:4; 2:24-29; 2:36-41; 2:50-61; 3:13-23; 3:43-46; 4:21-29; 5:17-19; 5:29-6:60; 6:61-7:19; 7:20-23; 8:30-32; Figs. 1-5 and accompanying text; Claims 2-4, 6-8, 10-11, 16, 18 **U.S. Patent No. 5,847,704 at** 2:47-54 **U.S. Patent No. 6,520,699** 5:1-41; 5:42-60; 5:61-6:17; 7:41-61; 8:31-41; Figs. 3, 4, 6, 10A-B, 14, 16A-F and accompanying text.	"two or more related input devices" **'677 Patent at** Abstract; 1:63-2:4; 2:24-29; 2:36-41; 2:50-61; 3:13-23; 3:43-46; 4:21-29; 5:17-19; 5:29-6:60; 6:61-7:19; 7:20-23; 8:30-32; Figs. 1-5 and accompanying text; Claims 2-4, 6-8, 10-11, 16, 18 **U.S. Patent No. 5,847,704 at** 2:47-54 **U.S. Patent No. 6,520,699** 5:1-41; 5:42-60; 5:61-6:17; 7:41-61; 8:31-41; Figs. 3, 4, 6, 10A-B, 14, 16A-F and accompanying text.	"two or more related input devices" **'677 Patent at** Abstract; 1:63-2:4; 2:24-29; 2:36-41; 2:50-61; 3:13-23; 3:43-46; 4:21-29; 5:17-19; 5:29-6:60; 6:61-7:19; 7:20-23; 8:30-32; Figs. 1-5 and accompanying text; Claims 2-4, 6-8, 10-11, 16, 18 **U.S. Patent No. 5,847,704 at** 2:47-54 **U.S. Patent No. 6,520,699** 5:1-41; 5:42-60; 5:61-6:17; 7:41-61; 8:31-41; Figs. 3, 4, 6, 10A-B, 14, 16A-F and accompanying text.	"two or more related input devices" **'677 Patent at** Abstract; 1:63-2:4; 2:24-29; 2:36-41; 2:50-61; 3:13-23; 3:43-46; 4:21-29; 5:17-19; 5:29-6:60; 6:61-7:19; 7:20-23; 8:30-32; Figs. 1-5 and accompanying text; Claims 2-4, 6-8, 10-11, 16, 18 **U.S. Patent No. 5,847,704 at** 2:47-54 **U.S. Patent No. 6,520,699** 5:1-41; 5:42-60; 5:61-6:17; 7:41-61; 8:31-41; Figs. 3, 4, 6, 10A-B, 14, 16A-F and accompanying text.	plain and ordinary meaning, or alternatively, "two or more input devices"

Summary of Parties Initial Proposed Claim Constructions

VIT v. PCNA (12-cv-1286), *VIT v. FNA* (12-cv-1283), *VIT v. Ford* (12-cv-1284), *VIT v. Jaguar Land Rover* (12-cv-1285)

Term		Proposed Constructions[1]				
		PCNA	FNA	Ford	Jaguar	VIT
4	identifier (claim 19)	"visual representation of an associated page" **'677 Patent at** 4:61-5:10; 6:32-41; 7:2-8; Figs. 2, 4	unaccused	"visual representation of an associated page" **'677 Patent at** 4:61-5:10; 6:32-41; 7:2-8; Figs. 2, 4	unaccused	plain and ordinary meaning
5	the second set of input devices adjust parameters in the page displayed in the selectable area (claim 3)	A separate term in this paragraph requires construction. PCNA's construction of that term is provided above.	unaccused	"a set of input devices separate from the first set of input devices, that are used to adjust parameters in the selected page displayed in the selectable area" **'677 Patent at** Claims 2-3; Figures 1, 3-4; 5:8-6:60; 3:3-22; 2:16-41; 1:57-2:4; abstract	No construction necessary; or alternatively, "a set of input devices separate from the first set of input devices, that are used to adjust parameters in the selected page displayed in the selectable area" **'677 Patent at** Claims 2-3; Figures 1, 3-4; 5:8-6:60; 3:3-22; 2:16-41; 1:57-2:4; abstract	plain and ordinary meaning, or alternatively, "a set of input devices separate from the first set of input devices, that are used to adjust parameters in the page displayed in the selectable area"

Exhibit A

(12) **United States Patent**
Pathare

(10) **Patent No.: US 6,842,677 B2**
(45) **Date of Patent: Jan. 11, 2005**

(54) **VEHICLE USER INTERFACE SYSTEM AND METHOD**

(76) Inventor: **Prakash S. Pathare**, 175 Maxwell Rd., Latham, NY (US) 12110

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/376,783**

(22) Filed: **Feb. 28, 2003**

(65) **Prior Publication Data**

US 2004/0172182 A1 Sep. 2, 2004

(51) **Int. Cl.**[7] **G06F 7/00**

(52) **U.S. Cl.** **701/36**; 701/33; 701/41; 340/995.27

(58) **Field of Search** 701/1, 33, 36, 701/41, 211; 340/995.16, 995.17, 995.27

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,006,829	A	4/1991	Miyamoto et al.	340/459
5,121,099	A	6/1992	Hegg et al.	340/461
5,757,268	A	5/1998	Toffolo et al.	340/461
5,821,935	A	10/1998	Hartman et al.	345/839
5,847,704	A	12/1998	Hartman	345/764
6,009,355	A	12/1999	Obradovich et al.	701/1
6,223,103	B1	4/2001	Patil	359/819
6,240,347	B1	5/2001	Everhart et al.	701/36
6,300,939	B1	10/2001	Decker et al.	345/157
6,401,029	B1 *	6/2002	Kubota et al.	701/201
6,437,689	B2 *	8/2002	Kawai et al.	340/439
6,520,699	B2 *	2/2003	Abe	400/485

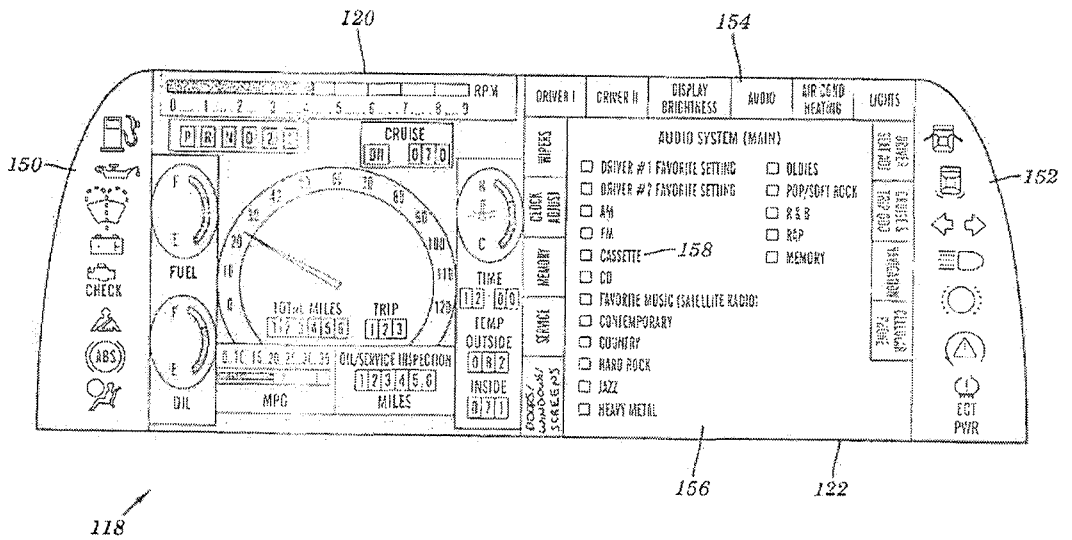
* cited by examiner

Primary Examiner—Gertrude A. Jeanglaude
(74) *Attorney, Agent, or Firm*—John W. LaBatt; Hoffman, Warnick & D'Alessandro LLC

(57) **ABSTRACT**

The invention provides a user interface for a vehicle. A display is configured to include a fixed area and a selectable area. The fixed area displays vehicle information, while the selectable area displays one of a plurality of pages that includes parameters for at least one of a plurality of optional subsystems for the vehicle. A steering device for the vehicle can include a first and second set of input devices mounted on opposing sides of the steering device. The first set of input devices select one of the plurality of pages to display in the selectable area. The second set of input devices adjust parameters on the selected page.

21 Claims, 5 Drawing Sheets



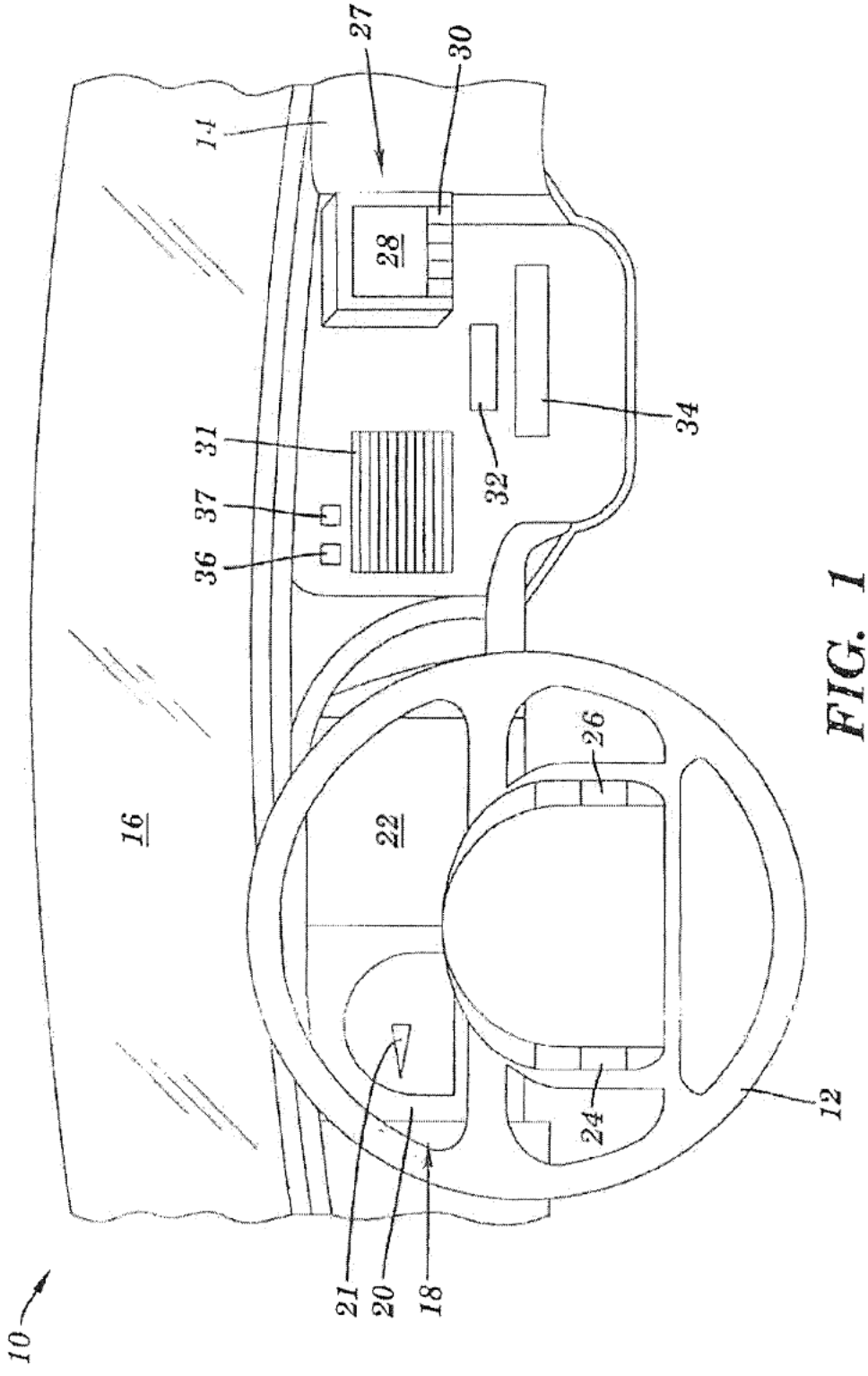


FIG. 1

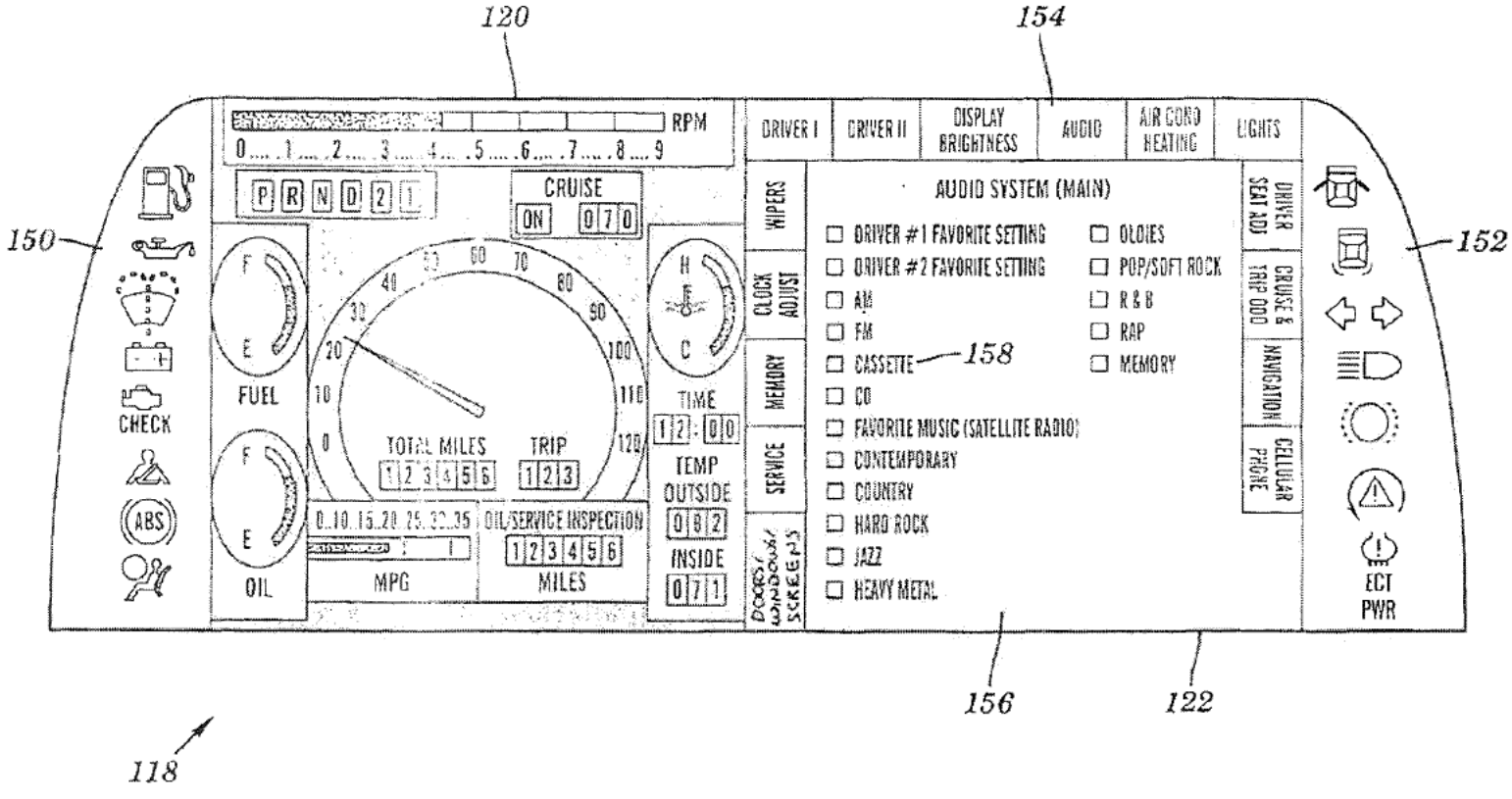

120
154
150
152
RPM
0 1 2 3 4 5 6 7 8 9
P R N D 2 1
CRUISE
ON 0 7 0
DRIVER I
DRIVER II
DISPLAY BRIGHTNESS
AUDIO
AIR COND HEATING
LIGHTS
WIPERS
CLOCK ADJUST
MEMORY
SERVICE
DOORS/ WINDOWS/ SCREENS
AUDIO SYSTEM (MAIN)
DRIVER #1 FAVORITE SETTING
DRIVER #2 FAVORITE SETTING
AM
FM
CASSETTE
CD
FAVORITE MUSIC (SATELLITE RADIO)
CONTEMPORARY
COUNTRY
HARD ROCK
JAZZ
HEAVY METAL
OLDIES
POP/SOFT ROCK
R & B
RAP
MEMORY
158
DRIVER SEAT ADJ
CRUISE & TRIP ODO
NAVIGATION
CELLULAR PHONE
FUEL
CHECK
ABS
OIL
TOTAL MILES
TRIP
TIME
TEMP OUTSIDE
INSIDE
MPG
OIL/SERVICE INSPECTION
MILES
ECT PWR
156
122
118

FIG. 2

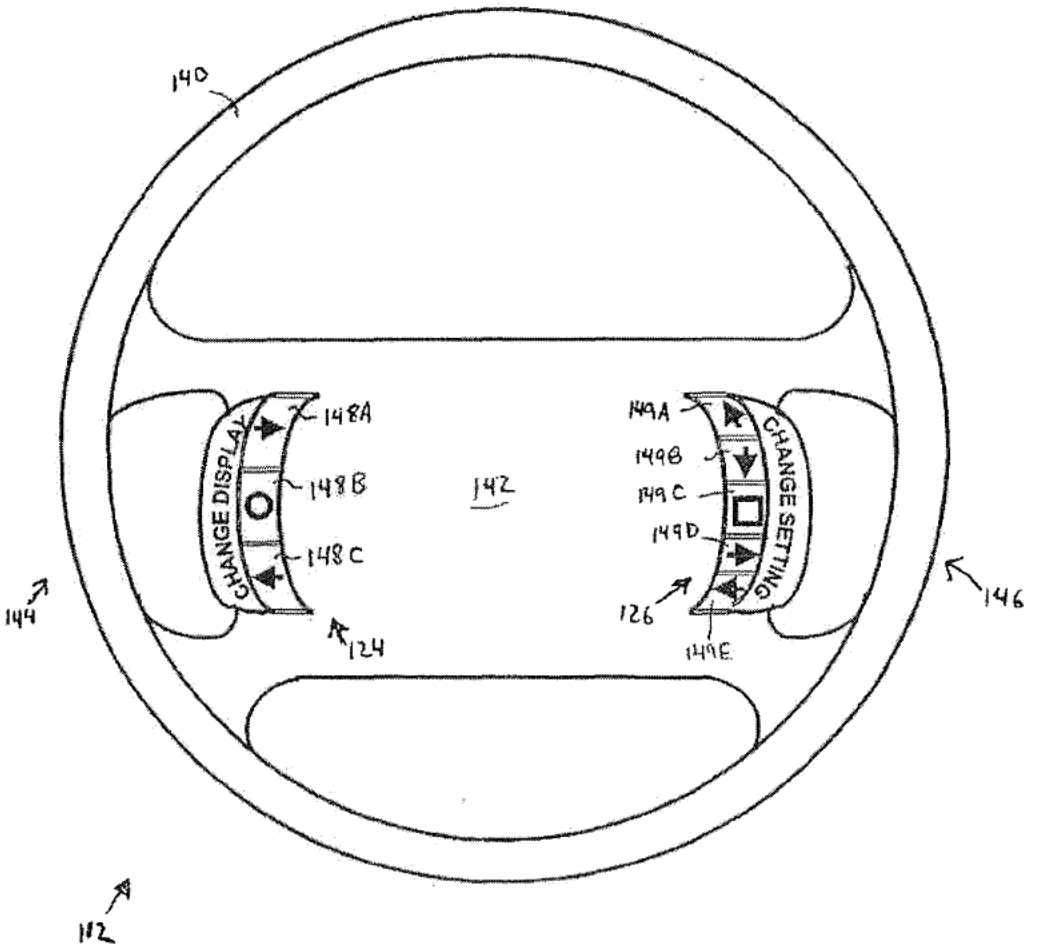

140
CHANGE DISPLAY
148A
148B
148C
142
124
149A
149B
149C
149D
149E
CHANGE SETTING
126
144
146
112

FIG.3

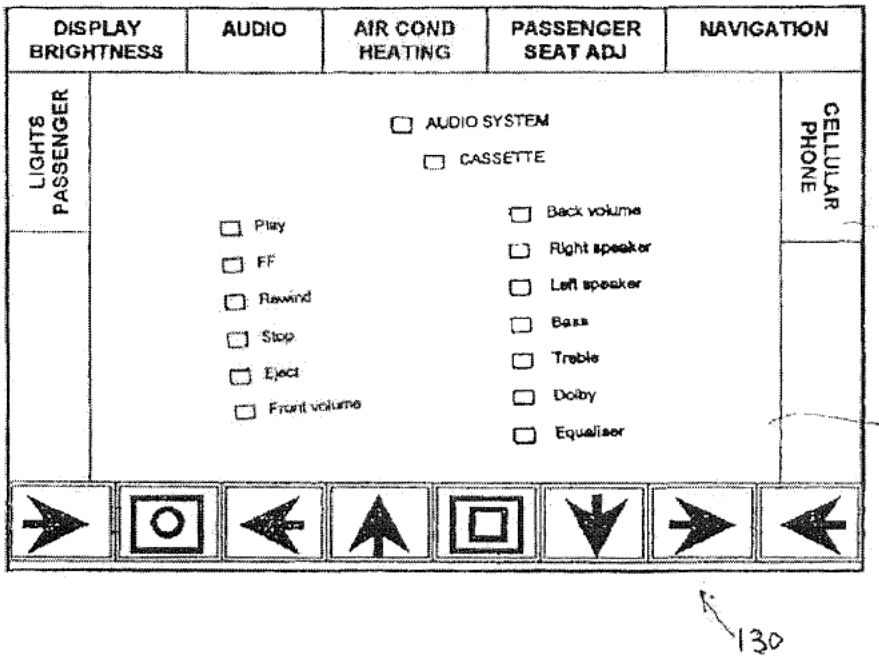

DISPLAY BRIGHTNESS
AUDIO
AIR COND HEATING
PASSENGER SEAT ADJ
NAVIGATION
LIGHTS PASSENGER
CELLULAR PHONE
AUDIO SYSTEM
CASSETTE
Play
FF
Rewind
Stop
Eject
Front volume
Back volume
Right speaker
Left speaker
Bass
Treble
Dolby
Equaliser
154
128
130
127

FIG. 4

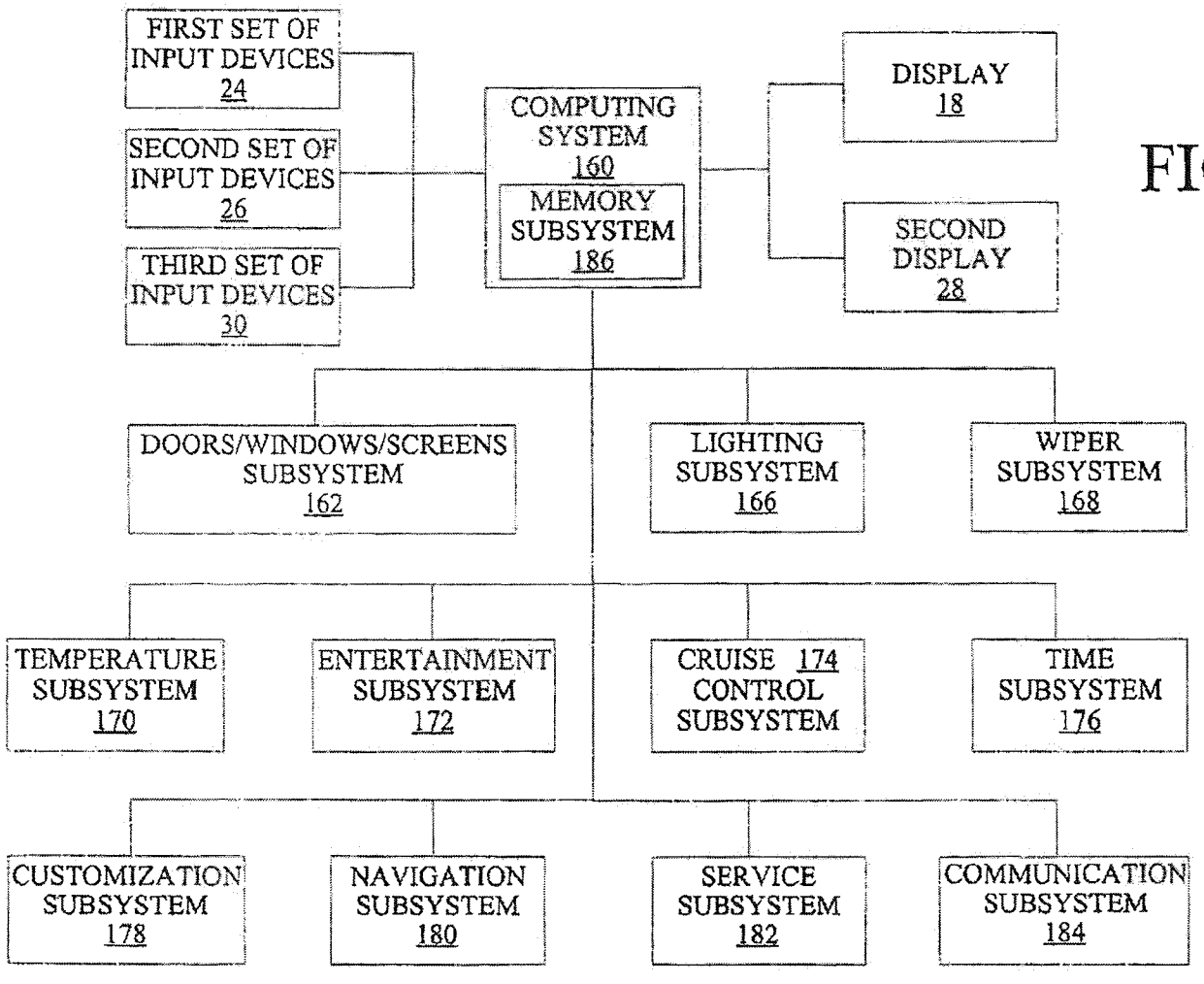

FIRST SET OF INPUT DEVICES 24
SECOND SET OF INPUT DEVICES 26
THIRD SET OF INPUT DEVICES 30
COMPUTING SYSTEM 160
MEMORY SUBSYSTEM 186
DISPLAY 18
SECOND DISPLAY 28
DOORS/WINDOWS/SCREENS SUBSYSTEM 162
LIGHTING SUBSYSTEM 166
WIPER SUBSYSTEM 168
TEMPERATURE SUBSYSTEM 170
ENTERTAINMENT SUBSYSTEM 172
CRUISE 174 CONTROL SUBSYSTEM
TIME SUBSYSTEM 176
CUSTOMIZATION SUBSYSTEM 178
NAVIGATION SUBSYSTEM 180
SERVICE SUBSYSTEM 182
COMMUNICATION SUBSYSTEM 184

FIG. 5

VEHICLE USER INTERFACE SYSTEM AND METHOD

BACKGROUND OF THE INVENTION

1. Technical Field

The invention relates to vehicle user interfaces. In particular, the invention provides vehicle user interface systems and methods that allow a driver to view and control a plurality of subsystems using a display having a fixed area and a selectable area and/or input devices located on a steering device for the vehicle.

2. Background Art

In recent years, an increasing number of features have been included in vehicles. As more features are included, the efficient display of information and operation of the various features becomes an increasingly difficult problem. Generally, each feature should be operable by the driver of the vehicle since he/she is often the only individual in the vehicle. However, a driver's primary concern is the operation of the vehicle on a road. Consequently, it is desirable that a user interface for operating the various features require a minimal amount of distraction for the driver. Further, as the number of features increases, the amount of space available to display information and place input devices has remained substantially the same. As a result, the interior of the vehicle has become increasingly cluttered with various input/output devices for the numerous features. Consequently, it is desirable to reduce the space allocated for displaying information and operating the features.

Previous solutions to the space/user interface problem have suggested altering the size and/or location of the displayed information. Some solutions have included input devices hanging from the roof, mounted on the interior of doors, on a center panel, on the dashboard, and/or on the steering wheel. These solutions generally require that certain functions be performed by using one or more input devices located away from the steering wheel of the vehicle. Further, by changing the location and/or size of the information displayed, these solutions require additional visual searching by a driver to locate the desired information in the vehicle. Thus, in each of the previous solutions, the driver must remove a hand from the steering wheel and/or divert focus from the road in order to perform one or more the operations.

As a result, there exists a need for user interface methods and systems that allow a driver to operate the various features while maintaining both hands on the steering device. Further, there exists a need for a user interface that allows a driver to easily locate desired information to reduce the time that his/her focus is away from the road. Still further, there exists a need to maintain an aesthetically pleasing vehicle interior while providing various features.

SUMMARY OF THE INVENTION

The invention provides user interface systems and methods for a vehicle. A display is provided to a driver that includes a fixed area and a selectable area. The fixed area displays vehicle information such as speed, gas level, mileage, etc. The selectable area displays a page that includes parameters for one or more optional subsystems. The desired page can be selected by the driver using a first set of input devices mounted on a side of the steering device (i.e., steering wheel) of the vehicle. Parameters displayed on the selected page can be selected and adjusted using a second set of input devices mounted on an opposing side of the steering device. A second display and/or a third set of input devices can also be provided to allow a passenger in the vehicle to view and/or select one of the pages and adjust one or more of the displayed parameters.

A first aspect of the invention provides a user interface system for a vehicle having a steering device, the system comprising: a plurality of pages, wherein each page includes at least one parameter for at least one of a plurality of optional subsystems for the vehicle; a display mounted behind the steering device, the display including a fixed area and a selectable area, wherein the fixed area displays vehicle information and the selectable area displays one of the plurality of pages; and a computing system in communication with the display device, wherein the computing system operates each of the plurality of optional subsystems based on the at least one parameter.

A second aspect of the invention provides a user interface system for a vehicle having a steering device, the system comprising: a plurality of pages, wherein each page includes at least one parameter for at least one of a plurality of optional subsystems for the vehicle; a display including a fixed area and a selectable area, wherein the fixed area displays vehicle information and the selectable area displays one of the plurality of pages; a first set of input devices that select one of the plurality of pages to display in the selectable area; and a second set of input devices that adjust the at least one parameter on the selected page; wherein the first set of input devices and the second set of input devices are mounted on opposing sides of the steering device.

A third aspect of the invention provides a method of operating a plurality of optional subsystems for a vehicle having a steering device, the method comprising: displaying vehicle information in a fixed area of a display; displaying one of a plurality of pages in a selectable area of the display, wherein each page includes at least one parameter for at least one of the plurality of optional subsystems; selecting a page to display in the selectable area using a first set of input devices mounted on a first side of the steering device; and adjusting the at least one parameter on the selected page using a second set of input devices mounted on a second side of the steering device.

The illustrative aspects of the invention are designed to solve the problems herein described and other problems not discussed, which are discoverable by a skilled artisan.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features of this invention will be more readily understood from the following detailed description of the various embodiments of the invention taken in conjunction with the accompanying drawings in which:

FIG. 1 depicts an illustrative portion of an interior of a vehicle according to one embodiment of the invention;

FIG. 2 depicts an illustrative display according to another embodiment of the invention;

FIG. 3 depicts an illustrative steering device according to yet another embodiment of the invention;

FIG. 4 depicts an illustrative secondary interface according to still another embodiment of the invention; and

FIG. 5 depicts a schematic representation of illustrative systems and subsystems in a vehicle including one embodiment of the invention.

It is noted that the drawings of the invention are not to scale. The drawings are intended to depict only typical embodiments of the invention, and therefore should not be considered as limiting the scope of the invention. In the drawings, like numbering represents like elements between the drawings.

DETAILED DESCRIPTION OF THE INVENTION

The invention provides user interface systems and methods for a vehicle. A display is provided to a driver that includes a fixed area and a selectable area. The fixed area displays vehicle information such as speed, gas level, mileage, etc. The selectable area displays a page that includes parameters for one or more "optional" subsystems. An optional subsystem is a subsystem that is optionally included with a vehicle (i.e., cruise control, navigation, etc.) and/or is optionally configured and operated (i.e., radio, seat adjustment, etc.) using a computer system installed in the vehicle. One or more pages can be used to configure each optional subsystem. The desired page can be selected by the driver using a first set of input devices mounted on a side of the steering device (i.e., steering wheel) of the vehicle. Parameters displayed on the selected page can be selected and adjusted using a second set of input devices mounted on an opposing side of the steering device. A second display and/or a third set of input devices can also be provided to allow a passenger in the vehicle to view and/or select one of the pages and adjust one or more of the displayed parameters.

Turning to the figures, FIG. **1** depicts an illustrative portion of the interior of a vehicle **10** according to one embodiment of the invention. Vehicle **10** includes a steering device **12**, a dashboard **14**, and a windshield **16**. The invention provides a user interface system that includes a display **18** having a fixed area **20** and a selectable area **22**. Fixed area **20** displays vehicle information, while selectable area **22** displays one of a plurality of pages that include at least one parameter for one or more optional subsystems installed in vehicle **10**. Display **18** is mounted in dashboard **14** behind steering device **12**. As a result, when a driver of vehicle **10** sits to operate vehicle **10**, display **18** can easily be viewed by the driver by looking directly in front of steering device **12** and slightly below windshield **16**. However, it is understood that selectable area **22** can be located anywhere in vehicle **10** so that it can be more easily viewed by the driver as well as other occupants of vehicle **10**. Alternatively, vehicle **10** can include a secondary interface **27** that includes a second display **28** that displays one of the plurality of pages. Secondary interface **27** can be mounted to dashboard **14** in a manner that allows one or more passengers of vehicle **10** to easily view second display **28** and/or operate set of input devices **30**.

Display **18** can comprise any combination of means for displaying information now known or later developed. For example, the current speed of the vehicle can be displayed in fixed area **20** by speedometer **21**. Speedometer **21** can comprise a mechanical dial, a computer generated dial, a computer generated numeric value, etc. Similarly, indicators of other information can be computer or mechanically generated. In one embodiment, fixed area **20** displays vehicle information that is predetermined when display **18** is installed in vehicle **10**. Alternatively, some or all of the vehicle information displayed in fixed area **20** can be selectively modified, for example, based on a driver identification. However, the information displayed in fixed area **20** preferably cannot be modified while the vehicle is being driven. Selectable area **22** and second display **28** comprise any type of computer-aided display now known or later developed. For example, selectable area **22** and second display **28** can comprise a black and white or color liquid-crystal display (LCD).

As noted above, fixed area **20** displays vehicle information for use by the driver. Vehicle information comprises various information that is always displayed to the driver of the vehicle. For example, vehicle information typically includes the current speed of the vehicle, the current mileage of the vehicle, a temperature indicator for the engine, and an amount of gas remaining for the vehicle. Other vehicle information can also be included, such as the revolutions per minute (RPMs) for the engine, a voltage level for the battery, an oil pressure, a currently selected gear for the vehicle, a trip distance, fuel efficiency, etc. Other information can also be included in fixed area **20** such as an interior/exterior temperature, a direction the vehicle is facing, a time, a maintenance indicator, etc.

Selectable area **22** displays one of a plurality of pages of information that are used to adjust parameters for the optional subsystems installed in vehicle **10**. Each page is configured to include one or more parameters for one or more optional subsystems installed in vehicle **10**. For example, a page may include various parameters for operating an audio system for vehicle **10**, and a second page may include various parameters for obtaining directions for a trip. A user can select one of the pages to be displayed in selectable area **22** using a first set of input devices **24**. For the displayed page, the user can further select one or more of the parameters and adjust the setting for the selected parameter or perform an operation using the appropriate subsystem using a second set of input devices **26**.

In the current embodiment, the user interface system for vehicle **10** allows all control for optional subsystems to be performed by using sets of input devices **24**, **26** and/or **30**. Because of this, no switches, buttons, dials, etc. are required on dashboard **14** or the remaining interior of vehicle **10**. As a result, the interior of vehicle **10** can have a simplified, more spacious look. However, several devices for the various optional subsystems may be included on dashboard **14**. For example, a vent **31** can be included for the heating/cooling subsystem. Further, a device **32** for accepting an audio tape, and/or a device **34** for accepting a CD/DVD can be included for an entertainment subsystem. Still further, a microphone **36** and/or speaker **37** can be included for use by one or more of the optional subsystems. Speaker **37** can also be used to generate an audible sound (i.e., unique tone, name of page, etc.) when a new page is selected in selectable area **22** to inform the driver of the currently selected page.

FIG. **2** depicts an illustrative display **118** according to one embodiment of the invention. Display **118** includes a fixed area **120**, a selectable area **122**, and two warning areas **150**, **152**. Fixed area **120** displays vehicle information and selectable area **122** displays a page of parameters as discussed above. Warning areas **150**, **152** display one or more vehicle warning indicators. Any combination of means now known or later developed for displaying warning indicators can be used. For example, each indicator can comprise a predetermined area within one of warning areas **150**, **152** that includes a symbol representing a warning condition. When a warning condition is detected (i.e., low voltage from the battery), the corresponding area is illuminated to indicate the presence of the warning condition. While shown displayed in warning areas **150**, **152**, it is understood that the various warning conditions could be displayed within fixed area **120** and/or selectable area **122**.

One or more areas within selectable area **122** can be reserved to display identifiers **154** for some or all of the pages that can be displayed in selectable area **122**. The identifier that represents the page currently being displayed can be highlighted (i.e., a unique color, bold, designated location, reverse colors, etc.). As shown, an identifier **154** for a page in each subsystem is always displayed, and are

located along the top and sides of selectable area **122**. It is understood, however, that identifiers **154** can be located along only the top, only the bottom, etc., and that the identifiers **154** displayed can scroll so that a particular identifier **154** is not always displayed in selectable area **122**. Alternatively, an audio signal can be generated each time a page is selected in conjunction with or alternatively to displaying and highlighting identifiers **154**.

Initially, when a vehicle is first turned on, selectable area **122** can display only identifiers **154**. Alternatively, a default page (i.e., the last page displayed, a welcome page, a commonly accessed page, etc.) can be selected and displayed in selectable area **122**. For example, page **156** is shown for operating and configuring an audio subsystem. Page **156** includes various parameters (i.e., AM, FM, Cassette, CD, etc.) for operating features of the audio subsystem. A user can use one or more sets of input devices (i.e., sets of input devices **24**, **26**, **30** shown in FIG. **1**) to adjust the parameters and operate the radio subsystem. When a parameter is selected, one or more input devices can be used to adjust the parameter. Alternatively, selecting a parameter can present the user with a new page **156** that includes various additional parameters. For example, a user can select the cassette parameter **158** and page **156** would change to the page that contains the various parameters for operating a cassette player (shown displayed in secondary display **128** in FIG. **4**). Alternatively, an identifier **154** for the cassette player could be included along with, and accessed in a manner similar to identifiers **154**.

Returning to FIG. **1**, steering device **12** includes first set of input devices **24** and second set of input devices **26**. First set of input devices **24** are mounted on a left side of steering device **12**, while second set of input devices **26** are mounted on a right side of steering device **12**. When operating vehicle **10**, a driver can hold onto steering device **12** with two hands. This allows first set of input devices **24** to be readily operated with the left hand of the driver, and second set of input devices **26** to be readily operated with the right hand of the driver. It is understood however, that sets of input devices **24**, **26** can be operated in any manner desired by the driver.

Sets of input devices **24**, **26** allow a driver of vehicle **10** to select one of the plurality of pages to display in selectable area **22**, and to select and adjust parameters on the selected page. In one embodiment, first set of input devices **24** are operated to select one of the plurality of pages to display in selectable area **22**. Once the desired page is displayed, second set of input devices **26** are operated to select and adjust parameters on the selected page. For example, as shown in FIG. **2**, first set of input devices **24** can be operated to change the selected identifier **154**, while second set of input devices **26** can be operated to change the selected parameter **158**. Sets of input devices **24**, **26** can also be used to operate second display **28**. However, second display **28** preferably includes a third set of input devices **30** mounted thereto that operate second display **28** independently from display **18**.

FIG. **3** depicts an illustrative steering device **112** according to another embodiment of the invention. Steering device **112** includes a circular exterior **140** and a central area **142**. Central area **142** is attached to exterior **140** in a manner that allows a driver to grip exterior **140** in various locations, including locations **144**, **146**. A first set of input devices **124** is mounted to central area **142** in an area proximate location **144** of exterior **140**. A second set of input devices **126** is similarly mounted to central area **142** in an area proximate location **146** on the opposing side of central area **142**. It is understood that sets of input devices **124**, **126** can be mounted to steering device **140** using any means now known or later developed. Further, it is understood that each set of input devices **124**, **126** can include one or more input devices of the same or varying types. For example, an input device in set of input devices **124**, **126** can comprise a switch, a rotation device, a push button, a joystick, etc.

In the current embodiment, first set of input devices **124** is used to select one of the plurality of pages to display in selectable area **22** of display **18** (FIG. **1**). First set of input devices **124** can be used to move forward and/or backward one page at a time through the plurality of pages. For example, first set of input devices **124** can comprise three input devices **148A–C**. Input device **148A** is used to move a selected page forward one page and input device **148C** is used to move the selected page backward one page. Input device **148B** is used to lock in the selected page, and change the currently displayed page to the selected page. Using first set of input devices **124**, the driver can cycle through the pages (using a visual and/or audio indication of the currently selected page), and change the displayed page when the desired page is selected. Alternatively, first set of input devices **124** can comprise two input devices that are used to move forward and backward through the plurality of pages until the desired page is displayed. In yet another embodiment, first set of input devices **124** can comprise a single input device that is used to move forward and/or backward through the plurality of pages. In the latter two embodiments, the displayed page can be changed to the selected page each time an input device is used to change the currently selected page.

Second set of input devices **126** adjust one or more parameters included on the displayed page. In the current embodiment, second set of input devices **126** includes five input devices **149A–E**. Input devices **149A**, **149B** can be used to change a currently selected parameter in the displayed page. Similar to the identifiers discussed above, the selected parameter can be highlighted on the page. Once the desired parameter is selected, input devices **149D**, **149E** can be used to adjust the selected parameter higher/lower, faster/slower, up/down, etc. Input device **149C** can be used to lock in the adjusted parameter for the operation of the corresponding optional subsystem. Alternatively, input devices **149A**, **149B** can be used to select and adjust parameters. In this case, input device **149C** can be used to change the function of input devices **149A**, **149B** between selecting a parameter and adjusting the selected parameter, and input devices **149D**, **149E** would not be required.

Each input device **148A–C**, **149A–E** can include a symbol, word, unique shape, and/or raised symbol that identifies the function provided by the input device **148A–C**, **149A–E**. While shown on opposing sides (left, right) of central area **142**, it is understood that sets of input devices **124**, **126** can be mounted in any location on steering device **112**. Further, while set of input devices **124** is generally discussed as selecting a page, and set of input devices **126** is generally discussed as selecting and adjusting parameters, it is understood that the invention is not limited to this configuration, and sets of input devices **124**, **126** can perform any combination of functions.

FIG. **4** depicts an illustrative secondary interface **127** according to still another embodiment of the invention. Secondary interface **127** includes a second display **128** and a set of input devices **130**. Secondary display **128** operates in the same manner as selectable area **122** discussed with reference to FIG. **2**. Similarly, set of input devices **130** includes various input devices that operate in the same

manner as input devices **148**A–C, **149**A–E, discussed with reference to FIG. **3**. However, a passenger operating secondary interface **127** can be limited to operate only a subset of the plurality of optional subsystems that can be operated by the driver. As a result, second display **128** can include a limited number of identifiers **254** that correspond to the subsystem(s) that passengers of the vehicle are allowed to operate. Similarly, both the driver and passenger can be limited to operating only a portion of an optional subsystem. For example, the driver can be allowed to adjust only the driver side seat, while the passenger is allowed to adjust only the passenger seat.

FIG. **5** depicts a schematic representation of communications between various systems and subsystems for vehicle **10** (FIG. **1**). Computing system **160** is in communication with sets of input devices **24**, **26**, **30** and displays **18**, **28**. As discussed above, sets of input devices **24**, **26**, **30** are used by one or more users to adjust parameters for one or more of the plurality of subsystems in communication with computing system **160**. Computing system **160** configures and/or operates the various subsystems depicted in response to input commands received from sets of input devices **24**, **26**, **30** and alters the content of displays **18**, **28** accordingly. Each subsystem includes one or more parameters that can be adjusted by computing system **160**. Based on the selected parameter settings, each subsystem alters its operation.

Several common optional subsystems that include one or more adjustable parameters are depicted. A user can use doors/windows/screens subsystem **162** to lock/unlock vehicle doors, enable/disable child safety locks, open/close various windows/screens in the vehicle, etc. Lighting subsystem **166** can turn on/off various interior lights, exterior lights, high beams, turn signals, hazard lights, adjust brightness, etc. Wiper subsystem **168** can be used to turn windshield, rear window, and/or headlight wipers on/off, and to adjust the speed and delay at which they operate. Each of these subsystems **162**, **164**, **166**, **168** are commonly included in all vehicles and are generally operated using input devices located within the vehicle. It is understood that the user interface system of the invention can be used to supplement and/or replace some or all of these input devices.

Temperature subsystem **170** can be used to operate heating/cooling settings (i.e., turn vents and defrost on/off, adjust air intake, etc.), select a desired temperature for one or more zones within a vehicle, monitor an outdoor temperature, etc. Entertainment subsystem **172** can include an audio subsystem for operating a radio, tape player, CD player, etc., and/or an audio/visual subsystem for operating a television, VCR, DVD player, etc. Cruise control subsystem **174** can be used to set a desired constant speed and turn cruise control on/off. Time subsystem **176** can be used to set and display the time, date, etc. Customization subsystem **178** can be used to adjust the seat, mirrors, select a custom sound for a horn, etc. Navigation subsystem **180** can be used to map out directions, show current heading, plan a trip, etc. Service subsystem **182** can be used to inform the owner of scheduled maintenance (based on miles and/or date), keep a record of past maintenance, etc. Communication subsystem **184** can include a wireless telephone (i.e., cellular phone), an emergency communication device, an information device, etc.

It is understood that the various subsystems are presented for illustrative purposes only. As a result, one or more of the subsystems can be combined into a single subsystem, split into multiple subsystems, operated apart from the current invention, and/or can be excluded from a vehicle. Further, it is understood that the various subsystems can be implemented using any combination of hardware or software. As such, some or all of the various subsystems may be implemented on computing system **160**. For example, memory subsystem **186** can be used to store and retrieve a default set of parameters for one or more drivers of vehicle **10** (FIG. **1**). Consequently, a driver can be presented with a page that identifies various sets of parameters by, for example, an individual's name. Based on a selected set of parameters, computing system **160** can adjust parameters for one or more of the subsystems. For example, a desired temperature for temperature subsystem **170**, seat and mirror location for customization subsystem **178**, etc. can be adjusted. Further, it is understood that operation of the various subsystems may use one or more common output devices and/or may effect the operation of one or more other subsystems. For example, communication subsystem **184** can use speaker **37** (FIG. **1**) that is also used by entertainment subsystem **172** to provide audio for one or more audio devices. Additionally, memory subsystem **186** and/or customization subsystem **178** can be used to select and change information displayed in fixed area **20** (FIG. **1**). For example, a first driver may desire to view an indication of engine RPMs and a numeric display of vehicle speed, while a second driver may desire to view the current time, outdoor temperature, and an analog indication of vehicle speed. By selecting the appropriate set of parameters, fixed area **20** can be altered accordingly. In current vehicles, some or all of the parameters for the various subsystems are adjusted using various input devices commonly included on a steering column, driver door, passenger door, dashboard, etc. It is understood that input devices for these subsystems or any of the subsystems can be included apart from sets of input devices **24**, **26**, **30**. Further, it is understood that any of the various subsystems can be operated independently from computing system **160**. Communications between computing system **160**, the various input/output devices, and the various subsystems can be implemented using any means now known or later developed.

The foregoing description of various embodiments of the invention has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed, and obviously, many modifications and variations are possible. Such modifications and variations that may be apparent to a person skilled in the art are intended to be included within the scope of the invention as defined by the accompanying claims.

What is claimed is:

1. A user interface system for a vehicle having a steering device, the system comprising:

a plurality of pages, wherein each page includes at least one parameter for at least one of a plurality of optional subsystems for the vehicle;

a display mounted behind the steering device, the display including a fixed area and a selectable area, wherein the fixed area displays vehicle information and the selectable area displays one of the plurality of pages, and wherein the fixed area and the selectable area each comprise a unique and static portion of the display; and

a computing system in communication with the display device, wherein the computing system operates each of the plurality of optional subsystems based on the at least one parameter.

2. The user interface of claim **1**, further comprising a first set of input devices in communication with the computing system, wherein the first set of input devices are mounted on the steering device.

3. The user interface of claim **2**, further comprising a second set of input devices in communication with the

computing system, wherein the first set of input devices select one of the plurality of pages to display in the selectable area, and wherein the second set of input devices adjust parameters in the page displayed in the selectable area.

4. The user interface of claim 3, wherein the first set of input devices and the second set of input devices are mounted on opposing sides of the steering device.

5. The user interface of claim 1, further comprising a secondary interface that includes a second display in communication with the computing system, wherein the second display selectively displays at least one of the plurality pages.

6. The user interface of claim 5, wherein the secondary interface further includes a third set of input devices in communication with the computing system and mounted on the second display, wherein the third set of input devices select one of the plurality of pages to display in the second display and adjust parameters on the page displayed in the second display.

7. A user interface system for a vehicle having a steering device, the system comprising:

a plurality of pages, wherein each page includes at least one parameter for at least one of a plurality of optional subsystems for the vehicle;

a display including a fixed area and a selectable area, wherein the fixed area displays vehicle information and the selectable area displays one of the plurality of pages, and wherein the fixed area and the selectable area each comprise a unique and static portion of the display;

a first set of input devices that select one of the plurality of pages to display in the selectable area; and

a second set of input devices that adjust the at least one parameter on the selected page;

wherein the first set of input devices and the second set of input devices are mounted on opposing sides of the steering device.

8. The system of claim 7, further comprising a secondary interface that includes a third set of input devices.

9. The system of claim 8, wherein the secondary interface further includes a second display that displays one of the plurality of pages, and wherein the third set of input devices select one of the plurality of pages to display in the second display and adjust the at least one parameter on the page displayed in the second display.

10. The system of claim 7, further comprising a computing system in communication with the display, the first set of input devices, the second set of input devices, and the plurality of optional subsystems, wherein the computing system operates the display and the plurality of optional subsystems based on the input devices.

11. The system of claim 7, wherein the first set of input devices consists of three input devices and the second set of input devices consists of five input devices.

12. The system of claim 7, wherein the selectable display is mounted behind the steering device.

13. The system of claim 7, wherein the plurality of optional subsystems includes at least two of: a temperature subsystem, an entertainment subsystem, a customization subsystem, a cruise control subsystem, a navigation subsystem, a communications subsystem, a time subsystem, a service subsystem, and a memory subsystem.

14. The system of claim 7, wherein the plurality of optional subsystems includes at least one of: a doors/windows/screens subsystem, a lighting subsystem, and a wiper subsystem.

15. The system of claim 7, wherein the display further includes at least one warning area that displays a plurality of vehicle warning indicators.

16. A method of operating a plurality of optional subsystems for a vehicle having a steering device, the method comprising:

displaying vehicle information in a fixed area of a display;

displaying one of a plurality of pages in a selectable area of the display, wherein each page includes at least one parameter for at least one of the plurality of optional subsystems, and wherein the fixed area and the selectable area each comprise a unique and static portion of the display;

selecting a page to display in the selectable area using a first set of input devices mounted on a first side of the steering device; and

adjusting die at least one parameter on the selected page using a second set of input devices mounted on a second side of the steering device.

17. The method of claim 16, further comprising displaying one of the plurality of pages in a second display.

18. The method of claim 17, further comprising:

selecting one of the plurality of pages to display in the second display using a third set of input devices mounted on the second display; and

adjusting the at least one parameter on the selected page displayed in the second display using the third set of input devices mounted on the second display.

19. The method of claim 16, further comprising:

displaying an identifier for each of the plurality of pages in the selectable area; and

highlighting the identifier for the page being displayed.

20. The method of claim 16, further comprising generating an audible sound each time a mew page is selected fur display.

21. The user interface of claim 1, wherein an appearance of vehicle information in the fixed area can be modified by a user and wherein the modification cannot occur while the vehicle is being driven.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

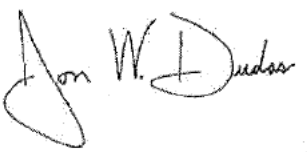
PATENT NO. : 6,842,677 B2
DATED : January 11, 2005
INVENTOR(S) : Prakash S. Pathare

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 10,
Line 30, delete "die" and insert -- the --.
Line 48, delete "mew" and insert -- new --.
Line 48, delete "fur" and insert -- for --.

Signed and Sealed this

Tenth Day of May, 2005



JON W. DUDAS
Director of the United States Patent and Trademark Office

Exhibit B

REMARKS

By this amendment, Applicant has amended claims 1, 7, 11, and 16, and added a new claim 21. As a result, claims 1-21 are pending in this application. These amendments are being made to facilitate early allowance of the presently claimed subject matter. Applicant does not acquiesce in the correctness of the objections and rejections and reserves the right to pursue the full scope of the subject matter of the original claims in a subsequent patent application that claims priority to the instant application. Reconsideration in view of the following remarks is respectfully requested.

In the Office Action, claims 1-5, 7, 10-13, 16-17, and 19 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,847,704 (Hartman). Applicant thanks the Examiner for the courtesy extended to Applicant's representative during a telephone interview conducted on July 7, 2004. During the interview, the features of claim 1 were discussed with regard to Hartman. No exhibits were provided during the interview, and no agreement was reached as a result of the interview. Additional substance of the remarks is incorporated in the following discussion.

With respect to claims 1, 7, and 16, Applicant notes that Hartman fails to disclose, *inter alia*, the claimed display. Since Hartman fails to disclose each of the claimed features as required by 35 U.S.C. § 102(b), Applicant respectfully requests withdrawal of the rejection of claims 1, 7, and 16.

In particular, Hartman's display does not include a fixed area that displays vehicle information and a selectable area that displays one of a plurality of pages. In support of its rejection, the Office cites Fig. 2 of Hartman as allegedly disclosing this feature of the claimed

invention. However, Fig. 2 of Hartman fails to disclose any selectable area displaying any one of a plurality of pages. As a result, Applicant respectfully submits that Fig. 2 of Hartman alone does not disclose the claimed display.

Additionally, the combination of Figs. 2 and 3 of Hartman fail to disclose the claimed display. In particular, Fig. 3 of Hartman shows the display of Fig. 2 altered in order to show additional information on a trip. However, as is clearly shown by the combination of Figs. 2 and 3, Hartman's display does not have two areas - (1) a fixed area for displaying vehicle information, and (2) a selectable area for displaying one of a plurality of pages. During the telephone interview, the Examiner indicated that the claimed fixed area and selectable area could comprise the same area. While Applicant disagrees with this interpretation, Applicant has herein amended claims 1, 7, and 16 to clarify that the fixed area and selectable area each comprise a unique and static portion of the display. In sharp contrast, the vehicle information in Hartman is relocated and/or resized to different portions of the display in order to accommodate the new information. See, e.g., Figs. 2 and 3; Col. 3, lines 47-65. As a result, Applicant respectfully submits that the Hartman fails to disclose the claimed display.

Applicant respectfully submits that each of the dependent claims is patentable for the above-stated reasons as well as their own unique features. For example, with respect to claims 5 and 17, the Office alleges that display 62 of Hartman as shown in FIG. 2 comprises the claimed second display. However, the same display 62 is cited by the Office in the rejection of the display of claim 1 as discussed above. Applicant respectfully submits that the single display of Hartman cannot disclose the two claimed displays as alleged by the Office. Consequently, Applicant respectfully requests withdrawal of the rejection of claims 2-5, 10-13, 17, and 19.

Further, claims 6, 8-9, and 18 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hartman in view of U.S. Patent No. 6,401,029 (Kubota et al.). With respect to this rejection, Applicant notes that the Office incorporates the various arguments presented with respect to claims 1, 5, 7, and 16. Applicant herein incorporates the responses from above. Further, with respect to claims 6, 9 and 18, Applicant notes that Kubota et al. also fails to disclose, *inter alia*, a second display that displays at least one of a plurality of pages. To this extent, Kubota et al. cannot disclose the claimed third set of input devices that select the desired page for display on the second display. As a result, Applicant respectfully requests withdrawal of the rejection of claims 6, 8-9, and 18.

Still further, claims 14-15, and 20 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hartman in view of U.S. Patent No. 6,009,355 (Obradovich et al.). With respect to this rejection, Applicant notes that the Office incorporates the various arguments presented with respect to claims 7 and 16. Applicant herein incorporates the response from above and respectfully requests withdrawal of the rejection of claims 14-15, and 20.

Finally, Applicant has herein added a new claim 21. Support for this claim is clearly found throughout the specification, such as paragraph 19, which begins on page 6 of the application. Applicant respectfully submits that this claim is in condition for allowance as presented.

In light of the above, Applicant respectfully submits that all claims are in condition for allowance. Should the Examiner require anything further to place the application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the number listed below.

Respectfully submitted,

John W. LaBatt, Reg. No. 48,301
Hoffman, Warnick & D'Alessandro LLC
Three E-Comm Square
Albany, NY 12207
(518) 449-0044 - Telephone
(518) 449-0047 - Facsimile

Dated: July 19, 2004

Exhibit C

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/376,783	02/28/2003	Prakash S. Pathare	PATH-0001	9995

23550 7590 07/13/2004

HOFFMAN WARNICK & D'ALESSANDRO, LLC
3 E-COMM SQUARE
ALBANY, NY 12207

EXAMINER	
ARTHUR JEANGLAUDE, GERTRUDE	
ART UNIT	PAPER NUMBER
3661	

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

E

Interview Summary	Application No.	Applicant(s)	
	10/376,783	PATHARE, PRAKASH S.	
	Examiner	Art Unit	
	Gertrude Arthur-Jeanglaude	3661	

All participants (applicant, applicant's representative, PTO personnel):

(1) *Gertrude Arthur-Jeanglaude*. (3)_____.

(2) *John Labatt (Reg # 48301)*. (4)_____.

Date of Interview: *07 July 2004*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☒ No.
If Yes, brief description: _____.

Claim(s) discussed: *1*.

Identification of prior art discussed: *Hartman (US 5,847,704)*.

Agreement with respect to the claims f)☐ was reached. g)☒ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *See Continuation Sheet*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Gertrude Arthur-Jeanglaude
Examiner's signature, if required

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)
In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: The Applicant's representative argues that the Hartman reference fails to disclose the limitation in claim 1 as follow "the display including a fixed area and a selectable area, wherein the fixed area displays vehicle information and the selectable area displays one of the plurality of pages" and further shows the difference in the invention Fig. 2 to point out a selectable display 122 and a fixed display 120; and refers to Figs. 2-3 of the Hartman reference to show that the display is not fixed compared to the Fig. 2 of the invention. Examiner maintains the rejection because the claimed language does not reflect a dual display .

Exhibit D

US005847704A

United States Patent [19]

Hartman

[11] Patent Number: 5,847,704

[45] Date of Patent: Dec. 8, 1998

[54] **METHOD OF CONTROLLING AN ELECTRONICALLY GENERATED VISUAL DISPLAY**

[75] Inventor: **Hollister A. Hartman**, Northville, Mich.

[73] Assignee: **UT Automotive Dearborn**, Dearborn, Mich.

[21] Appl. No.: **707,345**

[22] Filed: **Sep. 3, 1996**

[51] **Int. Cl.**[6] **G06F 15/00**

[52] **U.S. Cl.** **345/339**; 345/126; 345/127; 340/439; 340/990; 707/1

[58] **Field of Search** 345/326, 334, 345/339, 340, 342, 344, 345, 348, 349, 7, 113, 146, 173, 121, 126, 127; 364/424.01, 424.02, 424.06; 340/438, 439, 461, 425, 980, 990, 995; 701/1

[56] **References Cited**

U.S. PATENT DOCUMENTS

5,237,653	8/1993	Noguchi et al.	345/345
5,404,442	4/1995	Foster et al.	345/348
5,497,454	3/1996	Bates et al.	345/344
5,539,429	7/1996	Yano et al.	345/173
5,568,600	10/1996	Kabe	395/137
5,648,755	7/1997	Yagihashi	340/439
5,664,082	9/1997	Chen et al.	345/436

FOREIGN PATENT DOCUMENTS

0703111A2	9/1995	European Pat. Off. .
4033832A1	10/1989	Germany .

OTHER PUBLICATIONS

Knoll et al.: "Advanced Integrated Driver Information Systems"; measurement & Control, vol. 25, No. 9, Nov. 1992, London, GB, pp. 264–268, XP000320446.

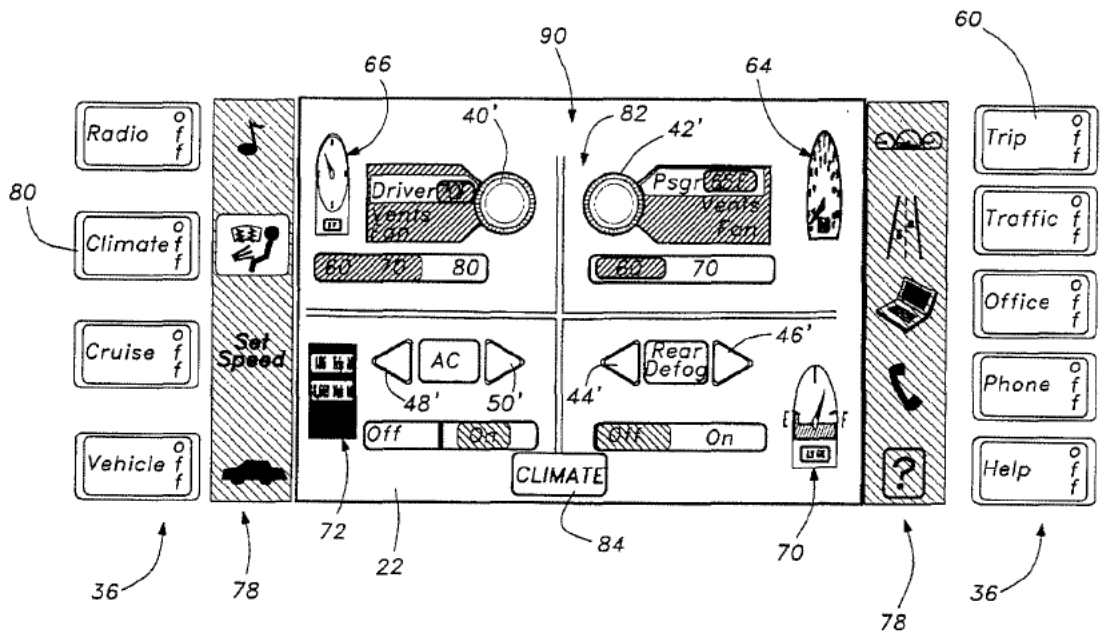
Primary Examiner—Huynh Ba

Attorney, Agent, or Firm—Howard & Howard

[57] **ABSTRACT**

A graphical user interface system for use in a vehicle includes a method of controlling a visual display. The display always includes images of selected items such as a speedometer, odometer and fuel gauge. When other displays are desired, the images of the selected items are moved to sides of the screen and rotated about an axis that is generally parallel to the screen. The moved and rotated images are simultaneously displayed with the desired display placed in the central portion of the screen.

11 Claims, 3 Drawing Sheets



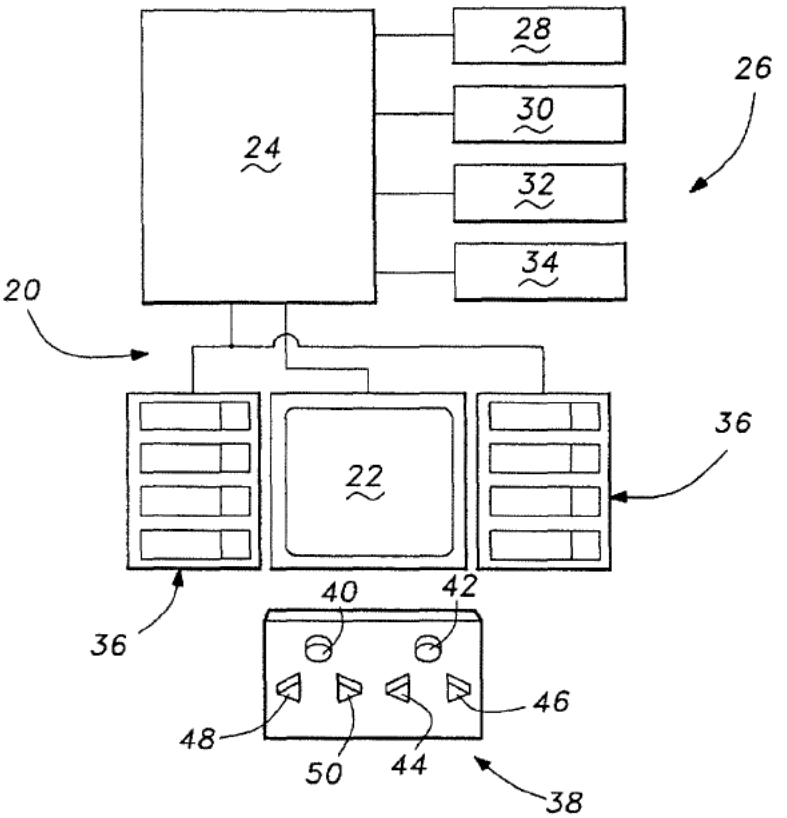


Fig-1

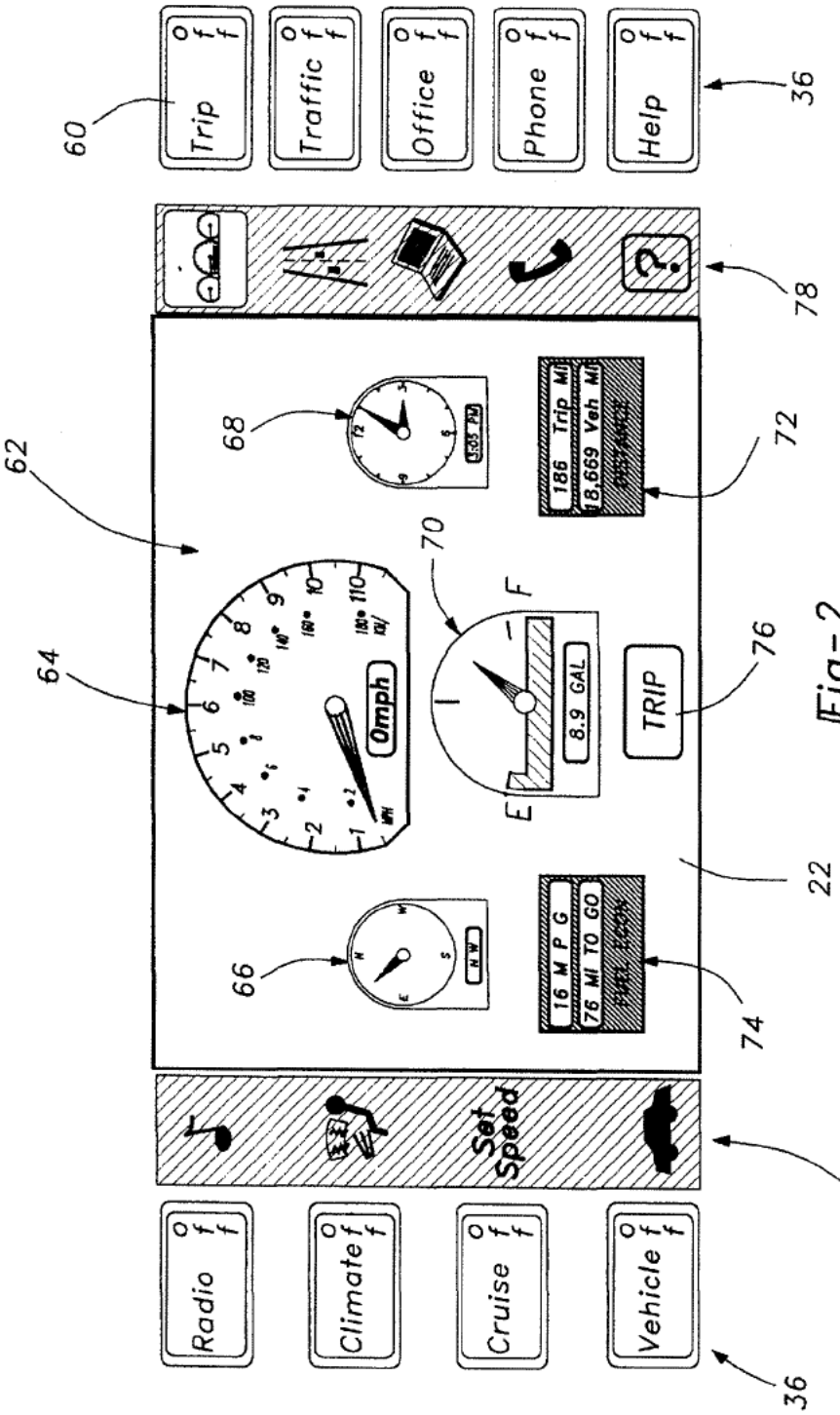

Trip
Traffic
Office
Phone
Help
Radio
Climate
Cruise
Vehicle
Set Speed
0mph
8.9 GAL
TRIP
186 Trip Mi
18,669 Veh Mi
16 M P G
76 MI TO GO
60
36
78
62
64
66
68
70
72
74
76
22

Fig-2